National Institute of Environmental Health Sciences

What is the evidence on applicability and effectiveness of public health interventions in reducing morbidity and mortality during heat episodes?

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Year: 2007
Publisher: National Collaborating Centre for Environmental Health (NCCEH) (Vancouver, Canada)

Abstract:

Heat events are associated with a diverse range of adverse health effects including excess mortality as well as many symptoms falling under the broad umbrella of “heat-related illness”. Although these effects are most marked in vulnerable populations like the elderly, socially isolated, and homeless, everyone is at risk to varying degrees. This negative impact of heat on health continues to be a persistent concern and is expected to become even more pressing in the future given the predicted meteorological changes linked to climate change. This work is to summarize the current state of knowledge and to provide practitioners with information that is relevant for policy and practice, with a focus on evidence of the applicability and effectiveness of related public health interventions. Minimal work has been done on the effectiveness of interventions, largely due to difficulties in evaluation. There is no standard definition for a heat episode or for heat-related illness. Heat episodes are rare events with varying impacts on different populations and geographical regions. As no two heat episodes are the same, challenges arise in attributing changes in health outcomes to interventions versus differences in weather conditions or in study design. Typically several interventions are implemented rather than only one, making it difficult to evaluate. There is an important role for longer-term strategies like environmental modifications. In the evaluation findings, most members of the public were aware when an extreme heat episode was occurring, as a result of broadcast media messages. However, less than half of these people actually reported changing behaviour in response. This was attributed to a perception that they are not part of a vulnerable group and to confusion around the meaning of the messages and actions. This included groups at greatest risk; such as, the elderly. It is not known whether these messages even reach the most vulnerable (e.g., socially isolated populations and the homeless). Heat health warning systems (HHWS) and their associated public health interventions were all associated with reduced mortality. Less certain were the causal relations between specific activities and mortality reduction, as well as which interventions protect which vulnerable groups. Intervention effects on morbidity were positive but limited to one study only. Some activities work well in certain communities while others are not as effective. For example, many elderly in large cities do not feel safe leaving their homes at night to visit an emergency cooling centre, but other age groups or individuals in other neighbourhoods do not necessarily share this concern. For this reason, locales need to develop interventions that are tailored to their community. Recommendations: 1) developing a national clearinghouse with guidelines defining a heat episode, guidelines for setting up a local HHWS, and suggestions for potential health interventions; 2) coordinating evaluations of heat response plans nationally; and so developing a framework with draft criteria which could be applied to a selection of public health sites that have heat interventions in place to assess their utility as an evaluation framework.

Source:
http://www.ncceh.ca/documents/evidence-review/what-evidence-applicability-and-effectiveness-public-health-intervention

Resource Description

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of

climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Morbidity/Mortality

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Elderly

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content